May 13, 2010 – Analogy CCLI – {ANGEO project}

Telecon with Dedre, Micah, Duncan and Nicole

Notes:

* The course will be run Spring 2011 – Two sections (1/2 online, ½ in person). One section will get analogies; the other will get similar learning experiences that do not include analogy training/assessment.
* Duncan has moved much of the content online. He suggests looking into the homework assignments to see the kinds of analogy work that has been done.
* Micah would make an excel sheet – rows (types of analogies); columns (things you might do)… laying out the analogy, stating an inference, stating where the analogy breaks down, building a third analogy, visual references for those analogies. Parallel excel sheet that tracks the students. (Dedre’s suggestion)
* Duncan has found two categories of responses – either correct underlying cause, or just a correct description
* The project will have ONE de-identifier here @ MSU that will assign codes to each student so that we can link results with their demographic data.
* Use analogy in instruction and assessment. Give students an analogy and see if they can explain it. Retrieving the analogy requires an intense encoding.
  + Ask them to explain why there is an analogy, and then explain the parts of each component, and reasoning with it, and then building a new analogy
  + For most of this – the primary way they understand it is through the analogy. The actual scientific processes are too intense to really understand it. Without the analogy they can understand ‘normic statements’ or facts, but the analogy provides a sample mechanism for why the facts are true. The analog isn’t secondary, but more the core of the learning.

FACT 🡪

ANALOG (process) 🡪

REASONING (applying process) 🡪 FIND CAUSAL RELATION

🡪 BUILDING NEW ANALOGY using CAUSAL RELATION

* Are the two objects involved in the analogy close or far transfer? So far Duncan has done close transfer to try to help them transfer scientific ideas. However, Dedre suggests that sometimes far transfer relations makes the mechanism more apparent in the analogy (although there aren’t often excellent far transfer analogies)
* Examples – gravitational potential energy and chemical potential energy (far transfer)
* Julie – even phenomena that you would think people know about (like baking) people are really unfamiliar for students (canning things, washing machines, etc.) This led us back to using other science ideas as the most appropriate analogs.
* Start with water cycle, since it’s best understood, then use water to relate the other systems to them.
* How will our meetings will go: Have reporters on each team, weekly updates from each team, share the team progress between a subset of the group, we then send out a joint report (on Wiki – email posts with text of what was added) of where we stand, where we’re going and what we discussed on the phone call.
* Since you’re teaching this summer course … could we do a pre-post test?
  + Give them a simple analogy with a clever answer
  + Question – are they just learning the analogies or are they learning the underlying relationships

Action Items:

* Duncan – send an example of a causal relationship, effect relationship and a descriptive relationship; send an example of a particular homework assignment that includes building an analogy
* Micah will start a blank spreadsheet that will begin to determine how each analogy will be coded, and perhaps what types of data need to be collected in the Spring.
* MSU (Nicole & Duncan) will make a spreadsheet with a catalogue of where the analogies fall in the curriculum as it is currently, and how they are categorized. Then we can decide what analogy activities to add to the course material over the fall for the course in Spring 2011.
* MSU will(Nicole & Julie) set up a Wiki so that all notes, documents can be warehoused (Talk to Steven on Monday).